contraindicated, due to resultant unopposed α-adrenergic stimulation. Administration of α-adrenergic blocking drugs (eg phentolamine), calcium-channel blocking agents, and possibly intravenous nitroglycerin or nitroprusside would be more rational therapeutic choices.

REFERENCES
1 Schneider DJ. Cardiac ramifications of cocaine abuse. Coronary Artery Dis 1991; 2:267-73
4 Lange WR, Lasinki DB. The clinical pharmacology of pentazocine and tripelennamine (Ts and B's). Adv Alcohol Subst Abuse 1986; 5:71-83
6 Nagle RE, Filcher J. Respiratory and circulatory effect of pentazocine: reviewing analogues often used in myocardial infarction. Br Heart J 1972; 34:244-51

Mitral and Tricuspid Annular Endocarditis*

Diagnosis by Transesophageal Echocardiography

Mohandas M., Shenoy, M.D.; and Kulandaivelu Chandrasekaran, M.D.

Two cases of infective endocarditis with vegetations attached to the mitral and tricuspid annuli are described. In both cases, the vegetations could not be identified by transthoracic echocardiography. These cases illustrate the advantage of TEE over the transthoracic approach in recognizing vegetations in extravalvular locations.

(Chest 1992; 101:1732-33)

TEE = transesophageal echocardiography

Infective endocarditis is a serious disease that requires prompt recognition and treatment. Although echocardiography has vastly improved our ability to diagnose this condition rapidly, a diagnostically adequate transthoracic echocardiographic study may not always be possible. Poor quality of images may result when certain physical characteristics of the patients (such as obesity) and chest diseases (such as emphysema) impede the transmission of ultrasound. With TEE, these difficulties are circumvented. The following cases illustrate the superior diagnostic ability of TEE over the conventional, transthoracic echocardiography in detecting vegetations located in unusual sites within the heart.

CASE REPORTS

Case 1

A 74-year-old man was hospitalized with high fever. The exam-

*From the Division of Cardiology, Departments of Medicine, Coney Island Hospital, SUNY-Health Sciences Center, Brooklyn, NY.
myocardial infarction. A temporary transvenous pacemaker lead was placed when complete heart block developed. The introduction of the pacing lead into the right ventricle was somewhat difficult and required several attempts. High fever and leukocytosis developed on the sixth day. The blood cultures yielded a growth of Staphylococcus aureus. Therapy with intravenously administered oxacillin was initiated. The echocardiogram showed no echodensity attached to the pacing lead or the cardiac valves. The anulus of the tricuspid valve, however, appeared abnormally dense. Then, TEE was performed for a better definition of the previously noted finding. It showed an ovoid, pedunculated mass measuring 6 mm in diameter attached to the tricuspid anulus. The tricuspid valve leaflets were normal but the anulus was unusually thick. A small, located pericardial effusion was seen adjacent to the right atrium (Fig 2). The pacing lead was removed thereafter since the heart block resolved. The patient was discharged after six weeks of antibiotic treatment.

DISCUSSION

Vegetations of infective endocarditis are frequently located on cardiac valves and chordae tendineae. They may also form on congenital malformations and prostatic valves and materials (such as intracardiac patches). Vegetations on other intracardiac structures are rare. Endocarditis of calcified mitral anulus previously has been described mostly as a necropsy finding. In a large autopsy series, the incidence of vegetation on calcified mitral anulus was 0.09 percent.1 In a series of 80 patients with radiologically proven mitral anular calcification, Fullerson et al2 found three cases of subacute bacterial endocarditis. McKinsey et al3 identified mitral anular calcification in 6 percent of their patients with endocarditis. However, it is not clear from that report whether the vegetations were attached to the calcified anulus or located elsewhere. Recently, Tunic et al4 reported a case of infective endocarditis with a large vegetation attached to a markedly calcified mitral anulus. The diagnosis was made by TEE.

In contrast to these cases, our cases showed mild or no echocardiographic evidence of anulus calcification. Furthermore, the base of tricuspid anular endocarditis appears to be unusual since we have not found a report of a similar case diagnosed during life. In this case, the pacing lead probably caused endothelial injury which acted as the nidus for infection. The role of endothelial injury in endocarditis is well known.

ACKNOWLEDGMENTS: The authors thank Sandor A. Friedman, M.D., and Ernst Greif, M.D., for their critical review and helpful advice.

REFERENCES

6 Tunic PA, Freedberg RS, Schrem SS, Kronzon I. Unusual mitral anulus vegetation diagnosed by transesophageal echocardiography. Am Heart J 1990; 120:444-46

The Clinical Manifestations of Cardiac Mucormycosis*

John D. Jackman, Jr., M.D.; and Randall L. Simonsen, M.D.

The manifestations of cardiac mucormycosis may dominate the clinical picture of disseminated mucormycosis. These manifestations include myocardial infarction, congestive heart failure, conduction system disease, valvular incompetence and pericarditis. The development of such manifestations in a febrile compromised host with one or more predisposing factors should prompt consideration of disseminated mucormycosis in the differential diagnosis and initiation of appropriate diagnostic and therapeutic strategies.

(Chest 1992; 101:1733-36)

Cardiac mucormycosis occurs most often in the setting of disseminated infection and is characterized by areas of infarction resulting from fungal invasion of vessel walls. Endocardial invasion from adjacent infected thrombus or myocardium, valvular vegetations and pericardial involvement also have been reported. Herein we report two cases of cardiac mucormycosis in which the cardiac manifestations dominated the clinical picture. Chordae tendineae rupture, a previously unreported manifestation, led to cardiogenic shock in one patient with autoimmune hemolytic anemia. Pulmonic valve endocarditis, mycotic aneurysms and extensive pulmonary and myocardial infarction occurred in a second patient with a myeloproliferative disorder. Features common to these cases were underlying hematologic disorders, glucocorticoid therapy, conduction system disease in the form of bundle branch blocks, modest elevations in CK and congestive heart failure culminating in cardiogenic shock.

CASE REPORTS

Case 1

A 71-year-old man with warm-antibody autoimmune hemolytic anemia received steroid therapy and subsequently had a splenectomy. On the fifth postoperative day he developed fever and right middle and lower lobe infiltrates. An echocardiogram performed in the 14th day showed a slightly enlarged left ventricle with decreased contractility and normal aortic and mitral valves without regurgitation. Blood, urine and sputum cultures were negative. On the 20th day he complained of substernal chest pain for 5 min and was found to have a left bundle branch block. Examination showed jugular venous distention, basilar rales, a third heart sound and no murmur. He developed hypotension, progressive renal insufficiency and an active urine sediment with proteinuria, numerous red cells and white cells, red cell casts and granular casts. Serial cardiac enzyme valves disclosed CK to be 197 IU/L (14 percent MB), 162 IU/L (21 percent MB) and 144 U/L (21 percent MB), consistent with myocardial infarction. On the 23rd day a new murmur of mitral

*From the Departments of Internal Medicine and Pathology, the University of Texas Southwestern Medical Center, and Dallas Veterans Administration Hospital, Dallas.
†Presently at the Cardiology Division, Department of Internal Medicine, Duke University Medical Center, Durham.

CHEST / 101 / 6 / JUNE, 1992 1733

Downloaded From: http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21647/ on 06/25/2017